UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,897	02/01/2005	Marc Vertes	FR920050802US1	8427

35525 7590 10/05/2007

IBM CORP (YA)
C/O YEE & ASSOCIATES PC
P.O. BOX 802333
DALLAS, TX 75380

EXAMINER	
RIAD, AMINE	
ART UNIT	**PAPER NUMBER**
2113	

MAIL DATE	DELIVERY MODE
10/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/522,897	VERTES ET AL.	
	Examiner	Art Unit	
	Amine Riad	2113	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-39* is/are pending in the application.

4a) Of the above claim(s) *1-20* is/are withdrawn from consideration.

5)☐ Claim(s) ____ is/are allowed.

6)☒ Claim(s) *21-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *01 February 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892) AR

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 1/2/05 AR

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

Claims1-39 have been presented for examination.

Claims 21-39 have been rejected.

Claims 1-20 have been cancelled.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-39 are rejected under 35 U.S.C. 102(e) as being anticipated by Kelkar U.S. Patent 7,058,846.

In regard to claim 21

Kelkar discloses a method for replicating a software application in a multi-computer architecture (cluster), whereas said software application may be executed beforehand on a first computer of said cluster forming a primary node and intended for replication on at least one other computer of said cluster forming a secondary node, comprising a replication of the resources associated with said software application, characterised in that the replicated resources include: (Figure 2) and (abstract) [This figure shows two nodes 110A and 110B]

- the virtual memory of each process affected as well as its calling stack,
- system resources (inter-process communication, network connection, etc.) and

- data written on disks. (Summary; " These operations include storage management services that allow **configuration changes** to be made dynamically to storage resources") [Examiner reminds Applicant that resources include virtual memory, stack calls, system resources, and data written on disk.]

and in that it includes on the flow updating of the replicated resources by a dynamic introspection mechanism supplying the structure of the application to be replicated, as well as a dynamic graph of the resources and dependencies implemented.(Column 3; lines 33-36) [real time is on the flow]

In regard to claim 22

Kelkar discloses a replication method according to claim 21, characterised in that it includes a creation and a maintenance of a dependency tree, supplying at all times information on the resources which ought to be replicated. (Column 4; lines 53-56) [The synchronization of resource configuration necessitates respecting a dependency hierarchy, and a dynamic information provision]

In regard to claim 23

Kelkar discloses a replication method according to claim 21, characterised in that it includes a checkpointing mechanism via which the resources to be replicated are replicated on one or several secondary nodes. (Column 5; lines 34-36) [Examiner considers communicating changes from the first node to the second node as checkpointing]

In regard to claim 24

Kelkar discloses a replication method according to claim 23, characterised in that it includes three steps:

- capturing resources on the primary node,

- transfer over the network towards one or several secondary nodes;

- restoration on the secondary node(s). (Column 3; lines 33-39)

In regard to claim 25

Kelkar discloses a replication method according to claim 23, characterised in that it includes a mechanism for optimising the checkpointing mechanism. (Column 3; lines 37-39) [The synchronization is an optimization]

In regard to claims 26 and 27

Kelkar discloses a replication method according to claim 25, characterised in that the checkpointing mechanism is incremental.(Column 5; lines 34-35) [when the configuration changes are dynamic this means that the changes can be increased or decreased] and Kelkar also discloses replication method according to claim 25, characterised in that the checkpointing mechanism is discriminating. .(Column 5; lines 34-35) [when the configuration changes are dynamic this means that the changes can be increased or decreased]

In regard to claim 28

Kelkar discloses replication method according to claim 25, characterised in that the checkpointing mechanism includes at least one of the following functions:

- a process synchronisation barrier (PSB), (Figure 1; item 1.2 and 1.4 {updating of storage resource configuration} {update completed} and (Figure 2; item 215A and 215B)

- a resource management (RM), (Figure 3; item 360A)

- a system resources management (SRM), (Figure 1; item 104A)

- a process resources management (PRM). (Figure 2; item 110A The processor 110A is process resource management)

In regard to claim 29

Kelkar discloses a replication method according to claim 21, characterised in that it includes moreover a mechanism for replicating applicative data files between an operational node (OP) whereon the application is run and a so-called stand-by node (SB). (Column 5; lines 8-14)

In regard to claim 30

Kelkar discloses a method ensuring functional continuity of a software application in a multi-computer architecture (cluster), said application being executed at a given time on one of the computers of the cluster, called primary or operational node, while the other computers of said cluster are called secondary, said process implementing the replicating process according to any of the previous claims, (Figure 2) [This figure shows two nodes 110 A and 110B]

characterised in that it includes the following steps:

- replication of the application on at least one of the secondary nodes, in order to provide at least one clone of said application, (Column 5; lines 52-55)
- on the flow updating of said clone(s), (Column 3; lines 33-39)

and when detecting a fault or an event affecting said operational node, switching the service towards one at least of said clones.(Summary; "The present invention provides

a method, system , and computer program product to enable other nodes in a cluster to resume operations of a failed node")

In regard to claim 31

Kelkar discloses a functional continuity method according to claim 11, characterised in that the replication of the application is of holistic nature. (Column 3; lines 36-39) [the fact that the copying is synchronized makes the replica consistent]

In regard to claim 32

Kelkar discloses a functional continuity method according to any of the claims 11 or characterised in that it includes moreover updating the clones of the application. (Column 3; lines 33-36)

In regard to claim 33

Kelkar dislcloses a functional continuity method according to claim 30, characterlsed in that it includes moreover supervising the state of the resources necessary to the operation of the application. (Column 8; lines 48-50)

In regard to claim 34

Kelkar discloses functional continuity method according to claim 30, characterised in that it further includes, when detecting a fault or an event affecting said operational node, a step for electing, among the clones installed on secondary nodes, a clone to be substituted for the initial application, whereas the node whereon said clone elect is installed becomes the new operational node.(Column 9; lines 14-19) [Examiner understands that when concurrency happens the manager is forced to elect, and that how one clone gets to be chosen over another one]

In regard to claim 35

Kelkar discloses a functional continuity method according to claim 30, characterised in that it includes moreover a record on each clone of messages received by the primary or operational node, said messages being re-injected into the clone elected as new primary when switching. (Column 6; lines 1-2) & (Column 7; lines 5-8) [Examiner considers data flow as message which gets replicated into all the nodes.]

In regard to claim 36

Kelkar discloses a multi-computer system designed for running on at least one of said computers at least one software application, implementing the method ensuring functional continuity according to claim 31. (Column 3; lines 36-39)

In regard to claim 37

Kelkar discloses an application of the replicating method according to claim 21, for automatic optimisation of the information processing resources by load sharing by dynamic process distribution (Column 1; line 28) [One of the characteristics of clusters is load balancing dynamically]

In regard to claim 38

Kelkar discloses an application of the replicating method according to claim 21, for non-interruptive maintenance by process relocation upon request, over a data-processing resource network. (Summary) [Examiner considers maintenance a deliberate failure HINT shutting down purposely]

In regard to claim 39

Kelkar discloses an application of the replicating method according to claim 21, for preservation of applicative context in mobile applications. (Column 10; line 55) [Personal Data Assistant are mobile computer systems]

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant s invention. Patent Application Publication 2001/0008019 pertains to failing over, but lacks the continuity aspect of the present application. See PTO 892.

Contact

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amine Riad whose telephone number is 571-272-8185. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on 571-272-3645. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR
Amine Riad
Patent Examiner
9/27/07